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1.Basic Thermodynamics, and
2. Applied Thermodynamics
Authored by
Dr. M. Thirumaleshwar

Introduction

Thermodynamics lies at the heart of all branches of mechanical and energy engineering. It provides the scientific basis for understanding energy, heat, and work, and their transformation in natural and engineered systems. The present collection — Basic Thermodynamics and Applied Thermodynamics — authored by Dr. M. Thirumaleshwar and published by Bookboon, offers a complete, university-level coverage of both subjects, precisely matching the syllabus followed in most English-medium engineering institutions.

The Basic Thermodynamics volumes systematically explain the laws of thermodynamics, properties of pure substances, energy interactions, and entropy concepts, with carefully chosen examples that strengthen conceptual clarity.

KThe Applied Thermodynamics series extends these fundamentals to real engineering systems such as power plants, internal combustion engines, compressors, refrigeration and air-conditioning units, and various energy-conversion cycles.

A distinctive feature of this collection is the inclusion of software-based solutions using Mathcad, which help readers bridge the gap between theoretical understanding and computational practice. This integration of classical principles with modern tools makes the series invaluable for students, teachers, and practicing engineers alike.

This summary PDF serves as a convenient gateway to the complete set of volumes, enabling easy access for continued study, reference, and application.

Dr. M. Thirumaleshwar
October 4, 2025

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About the Author

Dr. M. Thirumaleshwar obtained his B,E. in Mechanical Engineering from Karnataka Regional Engineering College, Surathkal, Karnataka, India, M.Sc. in Cryogenics from the University of Southampton, U.K., and his Ph.D. in Cryogenics from the Indian Institute of Science, Bangalore. He has served in leading research and academic institutions including Bhabha Atomic Research Centre (BARC), Bombay, Centre for Advanced Technology (CAT), Infore, Madhya Pradesh, India, and as Guest collaborator in Superconducting Super Collider Project in Texas, USA, and also in several engineering colleges as Professor, Head of Department, and Principal. A dedicated teacher and prolific author, he has published several free engineering ebooks on Thermodynamics, Heat Transfer, and Cryogenics, benefiting students and teachers worldwide.

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